

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently Amended) An electrochemical generator, comprising:
~~a multiplicity of membrane fuel cells provided with reticulated gaseous reactant distributor, a multiplicity of cooling cells fed with liquid water, a device for feeding the gaseous reactants in a dry state and a device for humidifying at least one of said gaseous reactants and for withdrawing heat by permeation of part of said liquid water fed to said cooling cells across a multiplicity of metallic porous walls separating said fuel cells from said cooling cells, and by evaporation of said liquid water permeated to the interior of said fuel cells.~~

at least one membrane fuel cell and at least one cooling cell interposed between two bipolar plates,

wherein said at least one membrane fuel cell comprises a cathode compartment having a reticulated reactant gas distributor and an anode compartment having a reticulated reactant gas distributor,

wherein at least one gaseous reactant passes through said anode compartment and at least one other gaseous reactant passes through said cathode compartment,
said at least one cooling cell is interposed between said at least one membrane fuel cell and one of the bipolar plates, and is separated from said cathode compartment or said anode compartment of said at least one membrane fuel cell by a porous wall,
and

liquid water passes from said at least one cooling cell to said anode or cathode compartment of said at least one membrane fuel cell across said porous wall.

2. (Currently Amended) The generator of claim 1, wherein ~~one of said cooling cells is interposed between each consecutive pair of said membrane fuel cells~~ said at least one cooling cell is adjacent to either said anode compartment or said cathode compartment of said at least one membrane fuel cell.

3. (Currently Amended) The generator of claim 1, wherein said porous wall[[s]] ~~consist of comprises a metal sintered sintered metallic material with controlled permeability or [[of]] a metal fiber interlacement, optionally supported on a metal mesh or on an expanded or perforated sheet.~~

4. (Currently Amended) The generator of claim 1, wherein said porous wall[[s]] ~~comprises~~ a peripheral sealing frame.

5. (Currently Amended) The generator of claim 1, wherein at least one side of said porous wall[[s]] ~~are superficially modified~~ is coated with a hydrophobic material on ~~at least one face.~~

6. (Currently Amended) The generator of claim 5, wherein said hydrophobic material is a fluorinated polymer.

7. (Currently Amended) The generator of claim 1, wherein said reticulated gaseous reactant distributor has a fluid passage resistance substantially lower than that of said porous wall.

8. (Currently Amended) The generator of claim 1, wherein said reticulated gaseous reactant distributor is ~~an element selected from the group of~~ a piece of metal sponge[[s]], [[or]] a piece of metal foam[[s]], [[of]] ~~a~~ mesh[[es]], [[of]]~~an~~ expanded or perforated sheet[[s]], or a superposition of such elements combination thereof.

9. (Currently Amended) The generator of claim 1, wherein said reticulated gaseous reactant distributor is made of metal.

10. (Currently Amended) The generator of claim 1, wherein said at least one cooling cell[[s]] comprisess a conductive reticulated element ~~to ensure the electric continuity~~.

11. (Currently Amended) The generator of claim 10, wherein said conductive reticulated element of said at least one cooling cell[[s]] has a fluid passage resistance substantially lower than that of said porous wall[[s]].

12. (Currently Amended) The generator of claim 10, wherein said reticulated gaseous reactant distributor is an element selected from the group of a piece of metal sponge[[s]], [[or]] a piece of foam[[s]], [[of]] a piece of mesh[[es]], [[of]] an expanded or perforated sheet[[s]], or a superposition of such elements combination thereof.

13. (Currently Amended) The generator of claim 10, wherein said conductive reticulated element of said at least one cooling cell[[s]] is metallic, and optionally consisting of stainless steel, nickel or nickel alloy.

14. (Currently Amended) A method for generating direct electric current using said electrochemical generator of claim 1, comprising:
~~feeding at least one dry gaseous reactant to said membrane fuel cell of claim 1,~~
~~supplying a water flow to said at least one cooling cell[[s]] at a controlled~~
~~pressure higher than that of said at least one gaseous reactant to be humidified in said~~
~~anode or said cathode compartment said at least one cooling cell is adjacent to[.,]~~; and
~~allowing said water flow to permeate from said at least one cooling cell to said~~
~~adjacent anode or cathode compartment to at least one of in~~ said membrane fuel

cell[[s]] across said multiplicity of porous wall[[s]] and humidifies said gaseous reactant therein.

15. (Currently Amended) The method of claim 14,₁ wherein the gaseous reactant humidified by said flow of water permeating across said porous wall is oxygen.

16. (Currently Amended) The method of claim 14,₁ wherein both gaseous reactants are humidified by said flow of water permeating across said porous wall[[s]].

17. (Currently Amended) The method of claim 14,₁ wherein said flow of water is preheated.

18. (Canceled)

19. (Currently Amended) The generator of claim 9,₁ wherein [[the]] said metal is selected from the group consisting of stainless steel, nickel, and nickel alloys.